

Aberystwyth University

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Doran, A.; Schofield, P.; Low, Tiffany

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tel: +44 1970 62 2400
email: is@aber.ac.uk

Women's mountaineering tourism: an empirical investigation of its theoretical constraint dimensions

Abstract

The purpose of this study is to investigate the perceived constraints on participating in mountaineering tourism faced by women, and to empirically verify the dimensionality of those constraints. Survey responses from 314 female mountaineers were collected and four constraint dimensions were identified using confirmatory factor analysis. Three of these dimensions: 'intra-personal', 'inter-personal' and 'structural' constraints support earlier findings in the extant literature, both in general and in the adventure literature more specifically. The identification of a fourth dimension relating to 'family' constraints represents a theoretical contribution to the literature and an additional barrier to women's participation in mountaineering tourism. In previous studies, 'family' constraints have typically been subsumed within 'inter-personal' or 'intra-personal' constraints, but have emerged as a distinctly separate constraint category for women in relation to this particular tourist activity. The findings also have important implications for adventure tourism management practice.

Key words: constraints, women, mountaineering, tourism, recreation

1. Introduction

Mountaineering includes 'soft' and 'hard' adventure activities. The former include hill walking and moderate exertion trekking, while the latter involve high levels of skill and fitness for activities such as rock climbing, which place emotional demands on participants (Ewert & Jamieson, 2003). In a tourism context, both 'hard' and 'soft' mountaineering activities are packaged into adventure holidays to satisfy the increasing demand in the UK market. In particular, trekking holidays have seen significant growth in recent years (20%) due to their broad age appeal, as have holidays that feature expeditions to remote areas (5%) and mountaineering and rock climbing (4%) (Intel, 2015). This growth in demand is not surprisingly paralleled by increasing participation in recreational mountaineering in the UK (Sport England, 2016).

The Outdoor Industries Association (OIA, 2015) reported that both male and female participation in recreational mountaineering activities in the UK is increasing, yet gender-specific data is not available to support this claim. In contradiction, the British Mountaineering Council's (BMC, 2014) most recent survey reported its female membership remaining static since 2006 at 25%. Statistics on gender participation in mountaineering tourism are also limited, but like recreational mountaineering, there is some evidence for a male bias for 'hard' mountaineering holiday participation, while 'softer' activities such as walking are more appealing to women (Intel, 2015; OIA, 2015). What is unclear from these studies, is why walking is more appealing to women than 'harder' forms of mountaineering tourism.

There is a growing body of literature which examines female participation in mountaineering and climbing activities, although this is almost exclusively from a recreational perspective (e.g. Dilley & Scraton, 2010; Kiewa, 2001a, 2001b), while women's mountaineering tourism experiences have been neglected, with the exception of Carr's (1997) earlier work. Carr (1997) identified a number of constraints faced by women in mountaineering tourism, but no other studies in the last twenty years have assessed the extent to which these constraints may or may not manifest themselves in female mountaineering tourists.

Given this gap in knowledge, the purpose of this study is to investigate women's perceived constraints on mountaineering tourism participation, specifically rock, snow and ice climbing, mountaineering skill courses and high-altitude mountaineering; we do this by empirically examining the relevance of intra-personal, inter-personal and structural constraints (Crawford & Godbey, 1987) in this particular context. First, we identify women's perceived constraints on mountaineering tourism participation. Second, we examine the dimensionality of the constraints and identify a new, distinct 'family' constraint dimension. Third, we assess the influence of women's recreational mountaineering behaviour and demographics on the perceived constraints. Fourth, the theoretical significance and managerial implications of the new family constraint dimension are discussed. Finally, we make recommendations for further research.

2. Theoretical Background

The literature on constraints to participation in adventure activities has, for the most

part, been informed by Crawford and Godbey's (1987) intra-personal, inter-personal and structural 'leisure constraint' categories. Some variations on this have emerged which have resulted in re-labelling existing constraint categories in relation to the context of participation (e.g. Doran, 2016; Fendt & Wilson, 2012). Other studies have indirectly identified constraints from their research in which serious leisure (e.g. Dilley & Scraton, 2010) or gender (e.g. Davidson & McKercher, 1993; Plate, 2007), for example, were more dominant themes. The following discussion examines each of these constraint categories as they relate to mountaineering and climbing specifically and then in relation to adventure activities in general. These contexts will also be examined from both recreational and tourism perspectives, because of the inextricable link between the two. Adventure tourism activities often develop from non-commercial recreational adventure activities; they share the same resources and facilities, and evoke similar social and psychological benefits. The primary difference between them relates to location: adventure tourism is undertaken in a natural environment beyond commutable distance from home (Pomfret & Bramwell, 2014). Although numbers of female mountaineers and climbers have increased in recent years, engagement with, and constraints on participation in these activities in the context of tourism have been neglected in comparison with recreational mountaineering.

Of particular relevance to this study are the conceptualizations of gender and family within Crawford and Godbey's (1987) leisure constraint categories. Western cultures frequently conceptualize gender as a dyadic, binary concept based on sex, where one is either male or female (Moscoso-Sanchez, 2008) and masculinity operates in a binary position to femininity (Voskuil, 1998 in Morgan & Pritchard, 2000). This conceptualization is adopted in this study, but does not ignore the fact that gender is also 'a dynamic process, not an inborn trait, signifying relationships of power expressed in perceptions, learned behaviours and

expectations of what is feminine and masculine' (Henderson, 1994 in Swain, 1995, p. 253). This is echoed by Morgan and Pritchard (2000) who note the dominance of the Western patriarchy which results in power imbalances that favour masculinity as 'natural' and the norm. These conceptualisations form an integral part of the study and are examined herein.

Family, regularly identified as a constraint to participation, generally carries a tacit definition in the extant literature. In an attempt to clarify the use of the concept in this study, we recognise the notion of family being frequently equated with parent(mother)hood (e.g. Dilley & Scraton, 2010). Thus, the presence of offspring in the family nucleus is characteristic of the concept. The gendered division of labour that is evident in the transition to parenthood (Sanchez & Thomson, 1997) further resonates with the conceptualisation of gender above, and underlines the concurrent manifestation of gender and family as constraints to participation in mountaineering activities for women in the extant literature.

2.1 Women's Participation Constraints on Mountaineering in Recreation and Tourism Contexts

Of Crawford and Godbey's (1987) three leisure-constraint categories, *intra-personal* constraints have been found to be the least prominent of the three for recreational mountaineering participation. Fear, or the fear of not 'being able' to participate in climbing because of physical or technical skill deficiencies, or the mental inability to overcome inner flight instincts is noted as a core intra-personal constraint (Kiewa, 2001a). Female mountaineer tourists identify similar constraints where fear, anxiety and self-doubt are noted as key intra-personal constraints (Carr, 1997). However, in contrast to the recreational

context, *intra-personal* constraints in a tourism context are the most significant barriers to mountaineering participation.

The most salient barriers to women's recreational mountaineering participation are *inter-personal* constraints. This category includes factors such as family commitments (Dilley & Scraton, 2010), gendered expectations (Kiewa, 2001b) and constraints relating to mountaineering partners. Most previous studies report that female climbers view their male counterparts in a negative light due to their patronizing, domineering and condescending behaviour (e.g. Dilley & Scraton, 2010; Moscoso-Sanchez, 2008). In addition, male climbers are found to actively impede female climbers by supporting stereotypes of masculinity and femininity. In some instances, female climbers were expected to make travel arrangements and purchase food before being allowed to climb (Moscoso-Sanchez, 2008). Some males also prefer women to be less skilled so they could be perceived as better climbers (Plate, 2007). Finally, the masculine portrayal of adventure in film was also identified as a constraint to participation (Frohlick, 2005). By comparison, in a tourism context, the reporting of *inter-personal* constraints for female mountaineers has been limited to not having a climbing partner (Carr, 1997).

Structural constraints on recreational mountaineering include a lack of both time (Dilley & Scraton, 2010) and female role models (Rak, 2007; Vodden-McKay & Schell, 2010). The latter has been attributed to the continued reverence of male leaders, who are considered to be more confident, have more technical skills, and to be better leaders than their female peers, by both professionals and participants, which leads to women exiting the profession (Warren, 2016). Within mountaineering tourism, *structural* constraints include

frustration with the lack of local knowledge, having inexperienced or unfit partners, or irritation with restrictive weather conditions (Carr, 1997).

While Carr's (1997) study makes an important contribution as a first step in identifying women's constraints on mountaineering tourism participation, there are several limitations including currency, sample size and representativeness of the sample. Therefore, despite the increase in representation of women in, and general growth of, the mountaineering tourism sector, there is still a limited understanding of the constraints on women's participation in this activity. As such, the literature relating to the constraints on women's participation in adventure activities more generally, in both recreational and tourism contexts, was also reviewed to provide a more comprehensive understanding of the pertinent barriers.

2.2 Women's Constraints on Adventure Recreation and Adventure Tourism Participation

Barriers to participation in adventure recreation and adventure tourism activities highlight a number of 'macro-challenges' faced by women and all relate to one or more of Crawford and Godbey's (1987) three leisure constraint categories. For the sake of brevity, only those constraints additional to those which relate to mountaineering activities are presented herein. First, self-perception of being unadventurous is noted as a key additional *intra-personal* constraint to participation in adventure activities (Little 2002a, 2002b). Second, *inter-personal* constraints in addition to those identified in Section 2.1 include: lack of travelling companions, and experiences of localism in adventure activities (Bialeschki & Henderson, 1993; Davidson & McKercher, 1993; Fendt & Wilson, 2012; Little, 2002b;

McKercher & Davidson, 1994; Williams & Lattey, 1994; Wilson & Little, 2005). Finally, *structural* constraints to adventure activities include the skills-based nature of purchasing, transporting and using equipment, fear of getting lost in unfamiliar environments, lack of time and money and the poor promotion of benefits/opportunities for women (Fendt & Wilson, 2012; Hudson, 2000; Little, 2002b; McKercher & Davidson, 1994; Wilson & Little, 2005). The identification of both general adventure activity constraints and more specific mountaineering participation barriers, in both recreational and tourism contexts, provided a comprehensive foundation for the design of the primary research.

3. Method

3.1 Participants

A self-selected sample of female mountaineers was recruited between October 2015 and March 2016 by invitation through the Women's Climbing Symposium, social media of a UK mountaineering tour operator and through the online climbing forums WomenClimb and UKClimbing. Women were asked to complete an online survey of their mountaineering tourism participation constraints, constraint negotiation strategies and participation benefits; this paper examines their participation constraints. A mountaineering holiday was defined as staying away from home for at least one night to participate in mountaineering activities or courses. After deleting six incomplete questionnaires, 307 useable responses were obtained. The sample comprised mainly of UK residents (94.8%) in the following age groups: 18-24: 18.9%; 25-34: 46.6%; 35-44: 24.8%; 45-54: 8.5%; 55-64: 0.9%; >65: 0.3%. Respondents'

income and education levels were also obtained.

3.2 Measures

Participation constraints were measured on a five point Likert scale comprising items found to be important in previous studies. The survey also included questions about motivation to participate and the type of mountaineering activity respondents engaged in: bouldering, rock climbing, snow and ice climbing, and mixed (rock and ice) climbing. Additionally, it gathered information about the level of expertise attained in each activity type, the groups they climb with recreationally and frequency of participation in mountaineering tourism together with respondent demographics.

3.3 Procedure

Twenty-one constraints on women's participation in recreational mountaineering, mountaineering tourism, and other forms of adventure recreation and adventure tourism were identified in the literature. To test the dimensionality of the constraints, respondents' ratings on these items were subjected to exploratory factor analysis (EFA). Five variables (skew >1.0) were statistically normed using a base-10 logarithmic transformation. Principal axes factoring with Promax oblique rotation was used and items were excluded if they loaded on factors <0.3 and had <0.10 difference in loadings between two or more factors (Tabachnick & Fidell, 2007). The number of factors to be retained was determined by minimum eigenvalues of 1, scree plot examination and the results of a parallel analysis with a Monte

Carlo simulation.

Dimensions were labelled on the basis of a thematic analysis of items loading on each factor. Confirmatory factor analysis (CFA) was then conducted using maximum likelihood estimation. With a sample size of over 250 and 17 or more variables, RMSEA values <0.07 with CFI and TLI values over 0.92 indicate a close fit (Hair, Anderson, Tatham & Black, 2009). Moreover, a maximum value in the confidence interval of 0.07 is accepted as a reasonable error of approximation (Steiger, 2007). Finally, a series of one-way analyses of variance (ANOVA) were used to identify differences in the constraint dimensions on the basis of respondents' behavioural and demographic variables.

4. Results and Discussion

4.1 The Dimensionality of Women's Mountaineering Constraints

In the EFA, four items either did not load on any of the dimensions or had <0.10 difference in loading between two factors. The remaining 17 items loaded >0.4 (above 0.3 as recommended by Tabachnick & Fidell, 2007) on four dimensions, which accounted for 63.24% of the variance in the data. The adequacy of the four factor model was examined using CFA (Table 1). The model fit indices demonstrated a good fit with χ^2 (df) = 305.89 (90) normed χ^2 = 3.40, RMSEA = 0.056 with a 90% confidence interval: 0.046 to 0.067, NFI = 0.91, IFI = 0.95, TLI = 0.93, CFI = 0.95. Collectively, the results indicate a good fit between the model and the data. All items loaded significantly on their constructs and the moderate or strong, significant correlations between items loading on the same constructs

show evidence of convergent validity. The composite construct reliability (CCR) statistics are greater than the AVE statistics for all four factors and the square root of the AVE is greater than the inter-construct correlation for each factor, thereby indicating divergent validity. Factor 1 represents 'Inter-personal' constraints', factor 2 consists of items relating to 'Structural' constraints, factor 3 loads on the 'Intra-personal' items and factor 4 represents 'Family' constraints. While 'Family' constraints has emerged as a less robust factor than the other three, the parallel analysis, CFA solution, and subsequent tests have established its existence independently of the other dimensions, confirming the four factor dimensionality of the women's mountaineering tourism constraints model.

INSERT TABLE 1 ABOUT HERE

Previous qualitative studies which focus on female adventurers, including climbers, have categorised family commitments as either intra-personal/personal constraints or inter-personal/socio-cultural constraints. The former represent women's sense of guilt when leaving their family or home to pursue their adventure aspirations, while the latter reflect the social expectations of women to place household duties and family commitments before personal adventure desires (e.g. Davidson & McKercher, 1993; Dilley & Scraton, 2010; Doran, 2016; Fendt & Wilson, 2012; Little, 2002a; Little & Wilson, 2005). In contrast, previous studies which examined the experiences of both genders did not report family commitments to be a constraining factor for women (e.g. Carr, 1997; Kiewa, 2001a, 2001b; Plate, 2007; Moscoso-Sanchez, 2008), with the exception of West and Allin's (2010) study. They found that, due to family responsibilities, women are more likely to restrict their climbing practices and alter their approach to risk than men, thus highlighting the gendered nature of responsibility. In recognising the social risk posed to others by their actions,

exposed or risky routes, which they had once climbed, were avoided to reduce physical risks. Using a quantitative approach and a women-only sample, this study has identified family constraints as a distinctive independent dimension in addition to the three familiar constraint dimensions. This also indicates that the constraints relating to family commitments resonate more with women than men.

4.2 The Moderating Effects of Behavioural and Demographic Variables on Participation Constraints

4.2.1 Influences Relating to Respondents' Recreational Mountaineering Behaviour

The moderating effects of female mountaineers' behavioural and demographic variables on the participation constraint factors are shown in Table 2. Items 1 to 18 show the influence of respondents' recreational mountaineering behaviour on perceived mountaineering tourism constraints. For recreational bouldering participants in mountaineering tourism (1) only the structural constraints are significant. Bouldering requires no climbing partner and requires less equipment and knowledge of the natural environment than other mountaineering activities, such as snow and ice climbing. Therefore, it is not surprising that mountaineering tourism, particularly if it involves other forms of climbing activities, is perceived by participants of recreational bouldering to have significant structural constraints. By comparison, none of the constraint dimensions were significant for rock climbing participants (2), while all four constraint dimensions were significant for recreational snow and ice climbers (3). In particular, these types of holidays are perceived by women as an activity for men, where they would be a minority; additionally, their promotion portrays mountains as scary environments. Similarly, concerns about their climbing ability

and knowledge of the climbing routes were also significant constraints. However, the structural constraints were considered to be the most pertinent barrier. By comparison, while the family constraint dimension was significant for recreational snow and ice climbers overall, individual family constraint items, although higher for non-participants, were not significantly higher for recreational snow and ice climbers. These findings reflect the portrayal of this form of climbing as a masculine activity, the lack of female guides for this activity and the difficulty of finding female partners due to the low participation levels. They also mirror the need for costly specialist equipment (the absence of which may heighten personal fears and self-doubts), the difficulties associated with accessing remote climbing locations abroad, and concerns of family members about the high levels of risk associated with this form of climbing. Moreover, it is difficult to practice this form of climbing recreationally due to the limited snow and ice routes in the UK, the short weather window and the unreliable weather, which can create unstable climbing conditions; therefore, a large number of perceived constraints were to be expected.

INSERT TABLE 2 ABOUT HERE

As with the recreational bouldering participants (1), for the recreational mixed (rock and ice) climbers (4), only the structural constraints are significant. It is interesting to note that 'feeling unsafe when climbing in unfamiliar environments', 'not having the necessary equipment' and 'the high cost of mountaineering on holiday' are the key barriers to participation. Like snow and ice climbing, mixed (rock and ice) climbing requires expensive equipment and clothing. Also, there are additional physical risks associated with the natural environment and with unfamiliar climbing routes, which can make people feel unsafe and

heighten existing self-doubts. Concurrently, this can also heighten emotional risk perceptions, in terms of the risk to one's self-esteem if they were unable to complete the climbing route (West & Allin, 2010).

It is notable that all four constraints are perceived to decrease with the increasing importance of mountaineering in respondents' lives (5) and with both increasing self-confidence (6) and self-reliance (7) derived from mountaineering. Moreover, as would be expected, there is a significant decrease in structural and intra-personal constraints with increasing agreement that mountaineering gives participants new skills (8). There are no significant differences between those who never, rarely, sometimes, often or always participate in 'women-only' groups when climbing recreationally (9); by comparison, inter-personal constraints are significant for those women who always climb recreationally in 'mixed-gender' groups (10). This finding corresponds to what has previously been found in other studies on women's participation in mixed-gender groups. Feeling unwelcome or in a minority as a woman (Little, 2002a, 2002b) and the lack of female guides and role models (Vodden-McKay & Schell, 2010; Rak, 2007) can dissuade women from participating. Even if women look to different forms of media, such as films, magazines and books, to find role models, they are still under-represented. These contemporary spaces tend to reinforce traditional views of the heroic white male adventurer, conveying masculine features, such as bravery, risk-taking, competitiveness, physical strength, leadership, sacrifice, ruggedness and resourcefulness (Frohlick, 1999, 2005; Vodden-McKay & Schell, 2010). This can reinforce mountaineering as a masculine domain, compounding existing self-doubts in climbing abilities and concerns over being a minority. Therefore, the results from this study validate the findings of the qualitative recreational research to date in that women do experience inter-personal constraints relating to the masculine portrayal of mountaineering; additionally, they

show that this is also the case in a contemporary mountaineering tourism context. This is arguably because they experience men's interpretation of mountaineering and they may prefer more 'gender-neutral' or feminized mountaineering environments (Pomfret & Doran, 2016). Furthermore, the patronising and controlling behaviour of male climbing partners has been reported as a prominent constraint for female climbers (e.g. Dilley & Scraton, 2010; Kiewa 2001b), therefore stifling their opportunities to make leadership decisions and develop specific skills. Stereotypical gendered expectations have been found to shape the behaviour of both male and female climbers (Kiewa, 2001b; Robinson, 2008). For example, men expect women to be more focused on climbing relationships, less capable and less motivated, whilst women expect men to be more focused on the activity, physically capable and to have a greater pain tolerance. Not all participants in these studies conformed to gender expectations, but generally there was little deviation. Despite these findings, Plate (2007) and Robinson (2008) argue that gender relations in climbing are more complex, and assuming a binary approach where men will possess 'masculine' and women 'feminine' characteristics is too simplistic. While the studies found some male climbers are intolerant of female climbers, they also found that some encouraged and supported female climbers, found them to be their equals and preferred to climb with women because they were less competitive. Similarly, some female climbers were equally focused on the activity as their male peers and preferred to climb with men as they expect to be challenged by them, while other male and female climbers concentrated on the relationships that develop and enhanced their climbing. However, and in contradiction, research has also found that women are only accepted in the mountaineering community if they display femininity and hide any signs of masculinity (Robinson, 2008). Furthermore, if they show too much femininity, for example crying, they would be denigrated. Faced with 'such diverse and sometimes contradictory meanings given by men to women who participate in rock climbing' (p.88), it is unsurprising that inter-

personal constraints are significant for female mountaineers. Within the context of Bourdieu's (1986; 2010) theory of capital, the influence of women's social capital, in relation to their recreational mountaineering group membership, is therefore notable (see Beames & Telford, 2013).

While indoor climbing frequency categories are not significant constraint moderators (11), constraints significantly decrease for participants who often or always climb outdoors (12). Not surprisingly, all constraints significantly decrease with increasing experience levels of each mountaineering activity (13-16), and also with increasing length of time respondents have been climbing (17).

4.2.2 Influences Relating to Mountaineering Tourism Behaviour

Items 18 to 32 show the influence of respondents' previous mountaineering holiday behaviour on the perceived constraints. Unsurprisingly, constraints significantly decrease for those who have previously been mountaineering while on holiday (18) and also with increasing frequency of participation (19), although it is interesting that in both cases, there is no significant decrease in intra-personal constraints. This is notable because despite the positive influence that recreational mountaineering has on reducing intra-personal constraints relating to mountaineering tourism, respondents' past experience of mountaineering tourism is not significant. This may indicate that recreational mountaineering participation is a barometer of how women perceive constraints on mountaineering tourism.

The moderating effect of holiday mountaineering activity type on constraints is non-significant (20, 21, 22) with the exception of structural constraints for snow and ice climbing (23) and mixed (rock and ice) climbing (24), for the aforementioned reasons. The moderating influence of high altitude (>5000m) holiday mountaineering (25) is also non-significant, as is the effect of travelling alone (26), with a partner (27), friends (28), family (29) or a club (30). This is notable, because previous studies have reported the lack of a travelling companion to be a significant deterrent for women, from a social perspective, but particularly if the activity requires a companion (e.g. Fendt & Wilson, 2012; Little, 2002a). By comparison, all four constraints significantly decrease as the average number of days spent mountaineering whilst on holiday (31) increases, particularly when the activity lasts for over five days. This was expected because it allows time to consolidate skills; in the case of family constraints, it may suggest that perceived guilt decreases over time, possibly because of increased involvement in the activity and/or the support within the group.

The way in which respondents organise mountaineering holidays (32) is significant for inter-personal constraints, which decrease for those who make independent arrangements, as with recreational participation; this may reflect the greater degree of control over the group composition and selection of the guide resulting in reduced concerns over gender minority and unwanted male attention. By comparison, structural constraints increase in line with concerns over safety in unfamiliar environments and the need to both purchase specialist equipment and to find suitable partners. Group membership preference (33) is also significant for reducing all constraint types, as would be expected; this reflects the relevance of social capital in both the tourism and recreational contexts of mountaineering.

Items 34 to 37 show the influence of demographics on the perceived constraints to mountaineering tourism. Structural constraints are significant for age (34); they are higher for the 18-24 age group compared with older mountaineers, and for those with an annual income of less than £10,000 (35), both of which may reflect cost-related issues. Not surprisingly, these demographic variables among others, which represent respondents' economic capital (Bourdieu, 1986; 2010), have also been repeatedly linked with participation in outdoor recreation more generally (e.g. Boman, Fredman, Lundmark & Ericsson, 2013; Lopez-Mosquera & Sanchez, 2013). However, it is interesting to note that from the perspective of cultural capital, there are no significant differences in constraints on the basis of respondents' education (36), or on the basis of their nationality (37).

Overall, the large majority of significant variables for all four dimensions relate to respondents' recreational mountaineering behaviour rather than their holiday mountaineering behaviour or demographics, i.e. mountaineering tourism constraints seem to be influenced more by recreational mountaineering behaviour than by demographics or holiday mountaineering behaviour and preferences.

4.3 *Behavioural and Demographic Moderation of Family Constraints*

From the perspective of female mountaineer tourists, the family constraint dimension is distinct and separate from Crawford and Godbey's (1987) intra-personal, inter-personal and structural constraints (with significant convergent and discriminant validity). As such, further analysis was conducted on the three items which loaded on this dimension in the CFA. For each item, the moderating effects of the same behavioural and demographic

variables ($n = 37$) used on the four constraint dimensions was assessed using one-way ANOVA and t-tests (Table 3). Only seven variables were found to be significant constraint moderators.

INSERT TABLE 3 ABOUT HERE

The family and/or friends not understanding their participation in mountaineering tourism constraint was significant for participants of recreational bouldering (1) but not for participants of any other recreational mountaineering activity. This constraint was also significantly higher for those at a beginner's level of bouldering compared with an advanced level (13). Having just begun to climb, their family may still perceive the activity to be dangerous and may not yet fully understand their reasons for participating and/or beginners' may feel that, given their lack of expertise, they cannot justify time away from home. The household duties/family commitment constraint on mountaineering tourism was significantly higher for those who only recreationally climb in women-only groups (10) and increased in proportion to the number of days spent mountaineering whilst on holiday. This indicates that either the participants' sense of family commitment is heightened in women-only groups or that women with strong family connections prefer to climb recreationally in women-only groups. This possibly relates to socially ingrained perceptions that women-only groups are in some way inferior to mixed or male-only groups and this inferiority complex strengthens the obligation to home and family. Moreover, studies have shown that some women seek like-minded women and/or to develop skills in a supportive environment (Myers, 2010). Similarly, they may prefer to climb in women-only groups within a mountaineering tourism context. The increase in this family constraint in relation to the length of time away from home on holiday is to be expected because mothers may only want to spend a few days away

from their family (31). By contrast, it decreased with the increasing frequency of mountaineering holidays taken per year (19), presumably because once they have overcome this constraint it is perceived to be less restricting with increasing participation in mountaineering tourism. Furthermore, this is significantly less of a constraint for the 25-34 and over 55 age groups (34), possibly because women are having children later (Office of National Statistics 2015) or that their children are older and more independent. Not surprisingly, the feelings of guilt for leaving family and/or household duties significantly decreases if participants are travelling with their family (29), but generally increases in line with the number of days spent mountaineering whilst on holiday (31), and as with the household duties/family commitment constraint, it is significantly reduced for the 25-34 and over 55 age groups (34). No other demographic variables were significant family constraint moderators.

5. Conclusion

The purpose of this study was to investigate the perceived constraints on women's participation in mountaineering tourism and to examine the dimensionality of these constraints and the moderating influence of a range of behavioural and demographic variables. Previous studies on women's participation in adventure recreation (including mountaineering) and adventure tourism have identified family constraints as a critically important barrier to participation. Using confirmatory factor analysis, this study challenges the three-dimensional structure of tourism constraints in the context of women's participation in mountaineering tourism by quantitatively verifying a family constraint dimension, which is distinct from the previously identified intra-personal, inter-personal and structural constraints.

This represents an additional barrier for women's participation in mountaineering tourism.

Unlike other studies on women's participation in mountaineering, which have largely focused on the single activity of rock climbing, this study recognises a range of mountaineering activities that women participate in. Uniquely, this study has also examined how recreational experiences of these activities influence their perceived mountaineering tourism constraints. This is important because the findings show that women's perceptions of constraints on mountaineering tourism are influenced more by their recreational mountaineering behaviour than by their demographics or holiday mountaineering behaviour and preferences. This study therefore makes an important theoretical contribution to the understanding of women's constraints on mountaineering participation in both recreational and tourism contexts.

The findings also have important implications for mountaineering tourism management practice as they provide an insight into the main constraints on women's participation in a range of mountaineering tourism activities. Of particular relevance here is the strong influence of women's recreational mountaineering participation on their perceived constraints to mountaineering tourism. Moreover, intra-personal constraints were found to be the key barrier to mountaineering tourism participation for women, which supports both the results from qualitative research on this subject and the underpinning theory relating to the necessity of overcoming intra-personal barriers to form leisure preferences and commitment to participation (Godbey, Crawford & Shen, 2010). Adventure tourism organisations should therefore address intra-personal constraints in their communication with female clients. Many adventure tour operators already provide guidance on what level of fitness and experience is expected for their trips. Nevertheless, the findings indicate that more is needed

to help women recognise and have confidence in their abilities in order to facilitate participation and reduce emotional risk perceptions, but also to highlight its benefits. However, the results show that all of the dimensions may be barriers to participation, particularly family constraints, when targeting female mountaineering tourists. The findings also suggest that the media has its part to play, and recently the Adventure Travel Trade Association (ATTA, 2017) has recommended that adventure media should make an effort to feature real adventurous women of all shapes and sizes in their communication, with and without children.

The identification and confirmation of the family constraint dimension as a distinctive barrier to women's participation in mountaineering tourism may explain why 'softer' forms of recreational mountaineering and mountaineering tourism, such as mountain walking, are more appealing to women than 'harder' forms, such as ice and rock climbing. The latter are unlikely to involve other family members and as such, they are more likely to take female mountaineers away from their families. However, 'softer' preferences may also be influenced by both societal attitudes to women climbers and the negative perceptions of male climbers who tend to dominate 'harder' forms of mountaineering tourism (Pomfret and Doran, 2016). Moreover, family constraints were found to be significant for those who only recreationally climb in women-only groups. Reasons for this are unclear, and whilst previous studies have praised the benefits of women-only groups in terms of meeting like-minded women and the supportive environment they create, these groups may heighten their sense of family commitment. Further research is therefore needed to explore more fully the roles of women, gender and family relationships in mountaineering.

The participation constraint statements used in the questionnaire survey for this study represent items which have been found to be important in previous qualitative research, which has largely focused on women's experiences in other adventure recreation and tourism activities. Moreover, the majority of respondents (62.9%) were active participants in mountaineering tourism, which indicates that they managed to overcome the constraints to a greater or lesser extent. Indeed, the level of agreement with constraints was higher than disagreement with respect to only four of the constraints: costs, lack of knowledge of climbing routes, and concerns about both fitness levels and climbing abilities. Therefore, future research should attempt to capture the views of non-participants and explore social class and cost-related issues in more detail to identify the critical barriers to participation. Indeed, given that the findings from this study indicate that social and economic capital, rather than cultural capital are significant influences on women's participation in mountaineering tourism, further research should also examine these elements in more detail using a wider range of objective measures.

In relation to family constraints more specifically, future research should also focus on particular age groups traditionally linked with caring for children, whose participation was found to be significantly influenced by this constraint dimension. Moreover, in view of the existence of multiple masculinities (Wheaton, 2004) and the marginalisation of men who resist dominant stereotypes in the outdoors (Warren, 2016), research could also examine the participation constraints of men. The outdoor industry has been slow in examining masculinity (Warren, 2016) and research examining the participation constraints of male mountaineers may help to reconstruct the dominant male stereotype which is strongly associated with mountaineering, benefiting both male and female mountaineers alike. This will provide further insight into the role of gender in mountaineering tourism.

The emergence of family constraints as a distinctive barrier to women's participation in mountaineering tourism suggests that this may also constrain women's participation in other tourism activities; this is also an important area for further research, which has the potential to enhance our understanding of the psychological mechanisms at work in negotiating constraints both before and during participation.

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